National Institute of Environmental Health Sciences

Climate and vectorborne diseases

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Abstract:

Climate change could significantly affect vectorborne disease in humans. Temperature, precipitation, humidity, and other climatic factors are known to affect the reproduction, development, behavior, and population dynamics of the arthropod vectors of these diseases. Climate also can affect the development of pathogens in vectors, as well as the population dynamics and ranges of the nonhuman vertebrate reservoirs of many vectorborne diseases. Whether climate changes increase or decrease the incidence of vectorborne diseases in humans will depend not only on the actual climatic conditions but also on local nonclimatic epidemiologic and ecologic factors. Predicting the relative impact of sustained climate change on vectorborne diseases is difficult and will require long-term studies that look not only at the effects of climate change but also at the contributions of other agents of global change such as increased trade and travel, demographic shifts, civil unrest, changes in land use, water availability, and other issues. Adapting to the effects of climate change will require the development of adequate response plans, enhancement of surveillance systems, and development of effective and locally appropriate strategies to control and prevent vectorborne diseases.

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Resource Description

Early Warning System:

resource focus on systems used to warn populations of high temperatures, extreme weather, or other elements of climate change to prevent harm to health

A focus of content

Exposure :

weather or climate related pathway by which climate change affects health

Ecosystem Changes, Human Conflict/Displacement, Meteorological Factors, Precipitation, Temperature

Temperature: Fluctuations

Geographic Feature:

resource focuses on specific type of geography

None or Unspecified

Geographic Location: ☒

resource focuses on specific location

☐ Global or Unspecified

Health Impact: ☒

specification of health effect or disease related to climate change exposure

☐ Infectious Disease

Infectious Disease: Vectorborne Disease

Vectorborne Disease: Flea-borne Disease, Fly-borne Disease, General Vectorborne, Mosquito-borne Disease, Tick-borne Disease

Flea-borne Disease: Flea-borne Diseases, General

Fly-borne Disease: General Fly-borne Disease

Mosquito-borne Disease: General Mosquito-borne Disease

Tick-borne Disease: General Tick-borne Disease

Mitigation/Adaptation: ☒

mitigation or adaptation strategy is a focus of resource

☐ Adaptation

Resource Type: ☒

format or standard characteristic of resource

☐ Review

Timescale: ☒

time period studied

☐ Time Scale Unspecified

Vulnerability/Impact Assessment: ☒

resource focus on process of identifying, quantifying, and prioritizing vulnerabilities in a system

☐ A focus of content